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New Instruments for the Operative Treatment of Fractures of the Neck of the Femur

A NEW TECHNIQUE EVOLVED

by

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SAO PAULO, BRAZIL

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MANUFACTURED EXCLUSIVELY
BY
KNY-SCHEERER CORPORATION
21-09 Borden Avenue, Long Island City, New York

TRADE MARK

Made in U. S. A.

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IN SEARCH for a method of fixation which promised greater stability, Dr. Moreira designed Screw Fig. 2708½. This is a special thread stud-bolt device with its center canulated throughout the entire length, the head having a thread similar to the helical screw of Danis. The Moreira Screw has however much higher and sharper threads. The Screw is canulated to permit the use of a Kirschner wire as a guide.

(Patent applied for)

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2708½

Available in 5 lengths, 6½, 7½, 8½, 9½ and 10½ cm.

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The Moreira Screw Fig. 2708½ comprises:

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1. The Screw proper
2. A Cupped Flange
3. A Screw – or Locking-Nut with a long sleeve, the latter portion fitting into the cup of the flange. The screw nut does not come in contact with the bone.

All three parts of the above screw are made of "Vitallium", an alloy of cobalt, chromium and molybdenum, having a tensile strength of 140,000 lbs. Vitallium-Screws properly placed, remain tightly engaged in bone, because the alloy is completely inert in living tissue. It is not affected by body fluids, nor does the alloy affect the bone or tissue.
Inspection of clinical and experimental cases has demonstrated that Vitallium bone appliances, after an insertion of a period of over eighteen months, have remained absolutely bright and unaffected.

TECHNIQUE

AFTER the fracture has been reduced, an incision of about 6 cm. is made under a local anaesthesia on the outer aspect of the great trochanter. An assistant exerts continuous pressure on the trochanter of the injured femur, while another assistant exerts counter-pressure on the opposite side. This pressure and counter-pressure must be kept up throughout the operation, as otherwise the reduction may be lost.

A perforation is made in the cortex 2 cm. below the tuberculum inominatum and slightly anterior to the middle of the outer aspect of the shaft. Then a Kirschner wire 2 mm. thick and 30 cm. long is introduced by motor thru the trochanter and into the center of the neck of the femur. Any of the well known wire drill guards may be used. With some experience one may dispense with a guard. It is essential that the wire be placed thru the exact center of the neck. If the first attempt fails, then the wire may be withdrawn and re-inserted or the original wire may be left in situ as a guide for the second. A simple modification of the guide limits the penetration of the wire to the desired depth, avoiding perforation of the acetabulum and injury to the pelvic organs. **The position of the wire is always subject to Roentgen determination.**

The position of the wire being set, it is driven firmly into the femur head with a few light taps of a mallet.

The next step is to drill a channel 2 cm. deep for the cupped flange, using a specially designed Drill Fig. 2709½.

2709½

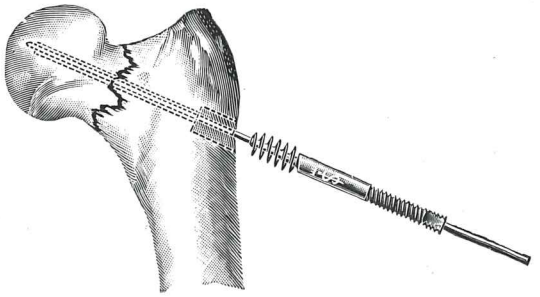
This canulated drill is guided during the drilling operation by the Kirschner guide wire.

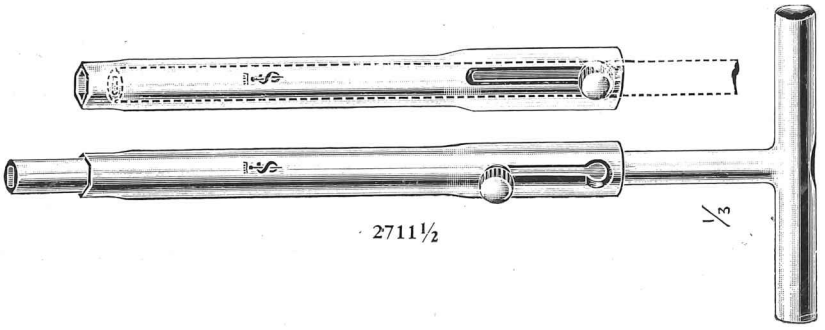
The 2 cm. channel is now extended in length by means of graduated and canulated Drill Fig. 2710½ fitted with an adjustable guard to predetermine the precise depth as determined from radiographs.

2710½

It is important to know that, should the wire guide slip out, despite all precautions, when the drill is withdrawn, it is very easy to put it back into its original position. Simply re-introduce the drill Fig. 2710½ into the bone channel and then the Kirschner wire, guided by the drill, is driven in and fixed in the femur head with a few taps of a mallet, as before.

This illustration shows the two drilled channels. The outer one is short and wide and receives the cupped flange. The inner one is long and narrow and receives the screw Fig. 2708½. The screw is guided over the Kirschner wire and thereby ensures perfect insertion.

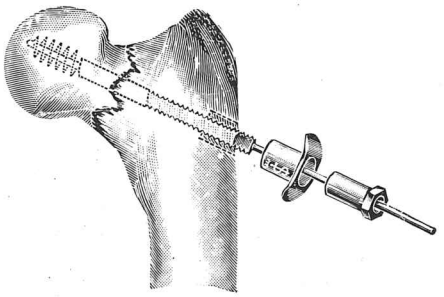




2711½

By means of Combination Wrench Fig. 2711½, the screw is now driven in. During this step of the operation, pressure on the trochanters should be absolutely firm and constant to avoid any dislocation of the femur head.

The screw in place, the cupped flange is introduced into the wide portion of the channel. The locking nut is then placed in the opening of the cupped flange and fastened to the thread of the screw and tightened with the open socket wrench, which is a part of the aforementioned Combination Wrench Fig. 2711½, until the head of the femur has been brought into firm apposition with the distal fragment. The construction of the locking nut is such, that if the screw is short and does not protrude, it may be taken up and threaded in the interior of the flange.



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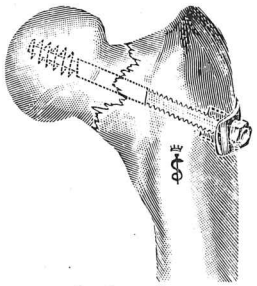
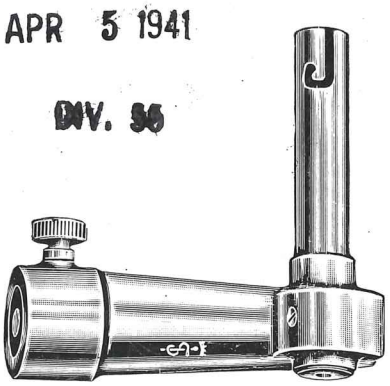
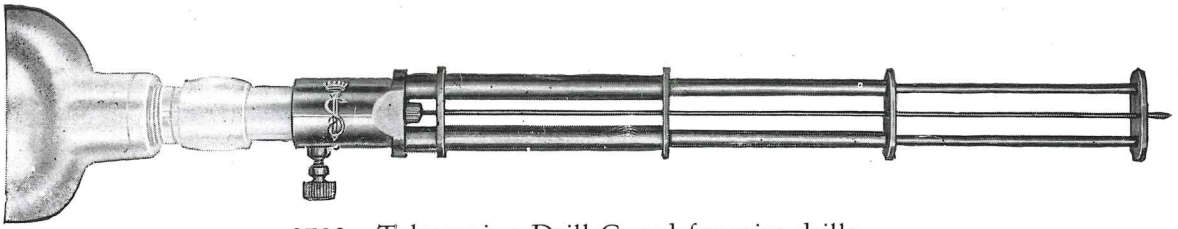


Fragments of the fracture adapt themselves to each other as to form a solid unit, as the pressure of the impaction, obtained by the screw, may be carried to any desired degree. This negative pressure can be developed to a point hereto unknown.



2712½

Fig. 2712½. Special attachment for mounting the drills and burrs in a right angle to the motor. Without this attachment the wire drill guide cannot be employed.



2702—Telescoping Drill Guard for wire drills.

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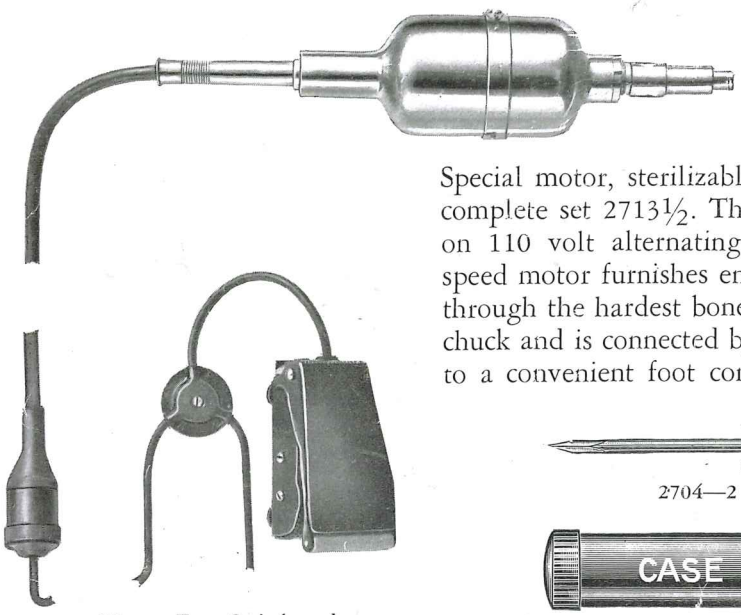

Motor, Foot Switch and Sterilizable Cord of 2713½

Special motor, sterilizable cord and foot switch supplied with complete set 2713½. This motor is universal and will operate on 110 volt alternating or direct current. The special high speed motor furnishes enough power to drive any drill rapidly through the hardest bone. The motor is an integral part of the chuck and is connected by an insulated sterilizable rubber cable to a convenient foot control switch.

2704—2 mm. Rustless Wire Drill

2705

2713½—Moreira Set for Hip Fracture comprises:

2708½	Three "Vitallium" Helical Screws for femur head, 7½, 8½ and 9½ cm. long. Each provided with a Vitallium screw nut, fitting into a cupped flange.
2709½	Short, canulated Burr to drill opening for cupped flange.
2710½	Long, graduated and canulated Drill for helical screw.
2711½	Special Combination Wrench for driving in the screw and tightening of screw locking nut.
2702	Telescoping Drill Guard for wire drills.
2704	Six "Stainless Steel" Wire Drills 2 mm., 12" long.
2705	Cylindrical Metal Container for wire drills.
2712½	Special Attachment for mounting drills and burrs in a right angle to the motor.
	Flat Rule, graduated in ½ cm. on one side and cm. on the other.
	Motor with sterilizable shell, chuck and handle.
	Sterilizable cord to motor.
	Sterilizable Line Cord with foot switch.
	Walnut Case holding the large set No. 2713½.

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NOTE: The Moreira Set for Hip Fracture can be supplied to fit the Albee Motor at no extra charge, providing you return the motor to us for adjustment.

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2714—Small Moreira Set for Hip Fractures *(minus motor)* consisting of:

2708½	Three "Vitallium" Helical Screws for femur head, 7½, 8½ and 9½ cm. long. Each provided with a Vitallium screw nut, fitting into a cupped flange.
2709½	Short, canulated Burr to drill opening for cupped flange.
2710½	Long, graduated and canulated Drill for helical screw.
2711½	Special Combination Wrench.
2702	Telescoping Drill Guard for wire drills.
2704	Six "Stainless Steel" Wire Drills 2 mm., 12" long.
2705	Cylindrical Metal Container for wire drills.
2712½	Special Attachment for mounting the drills and burrs in a right angle to the motor.
	Flat Rule, graduated in ½ cm. on one side and cm. on the other.
	Walnut Case holding the small set No. 2714.